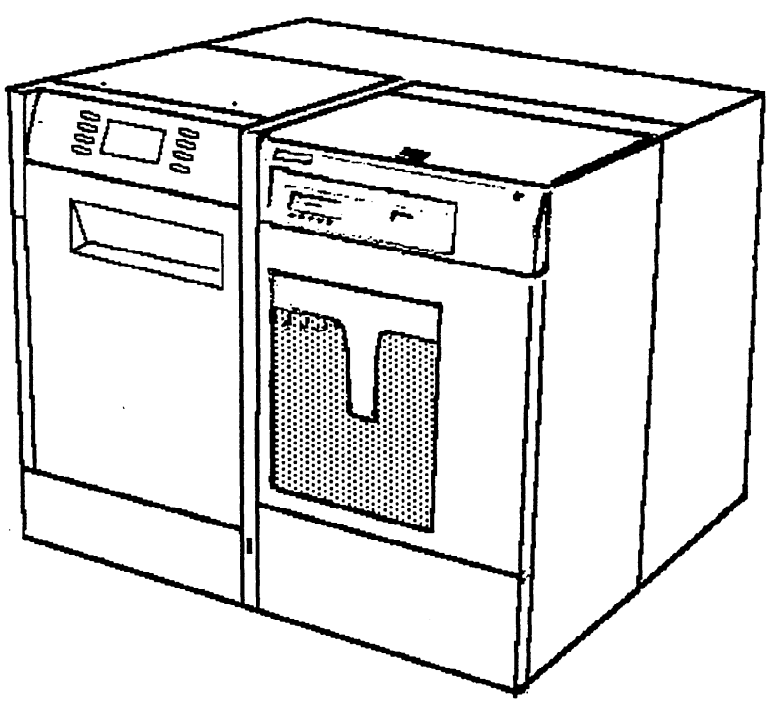
Publication No. DG 3066
3/95

DIAGNOSTICS MANUAL

for the

Kodak MULTILOADER 700 SIDE-BY-SIDE KIT



© KODAK AG STUTTGART, 1995

PLEASE NOTE

The information contained herein is based on the experience and knowledge relating to the subject matter gained by Kodak prior to publication. No patent license is granted by this information. Kodak reserves the right to change this information without notice, and makes no warranty, express or implied, with respect to this information. Kodak shall not be liable for any loss or damage, including consequential or special damages, resulting from the use of this information, even if loss or damage is caused by Kodak's negligence or other fault.

TABLE OF CONTENTS ..... PAGE

1. INTRODUCTION 1-1

2. HARDWARE RESET 1-2

3. SERVICE MODE 1-4

NORMAL SERVICE MODE 1-4

EXTENDED SERVICE MODE 1-4

4. ERROR HANDLING 1-5

5. FUSE PROBLEMS 1-7

MAIN FUSE IN THE IEC CONNECTOR IS BLOWN 1-7

FUSE F1 PCB A1 POWER SUPPLY IS BLOWN. 1-8

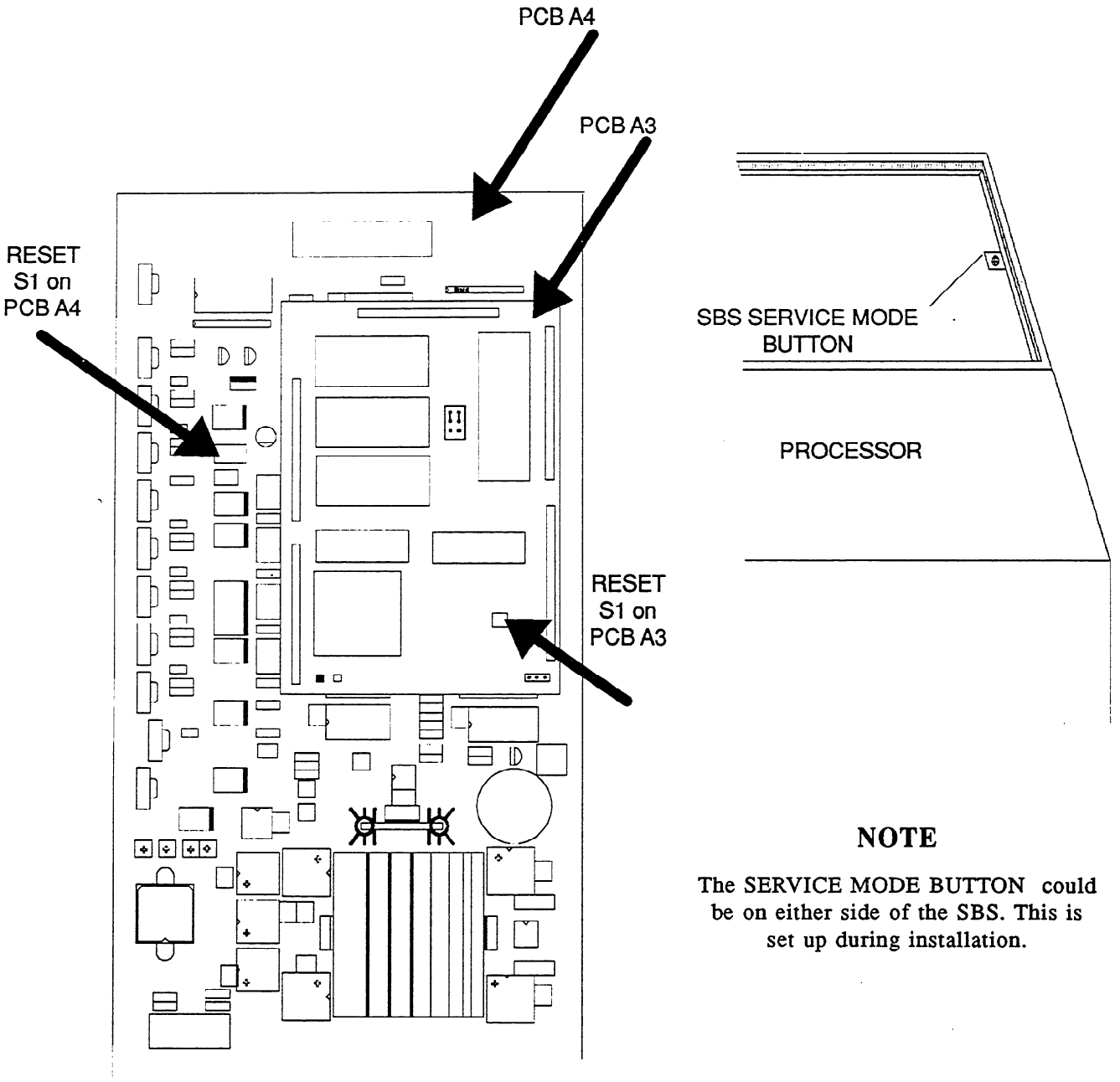
FUSE F2 PCB A1 POWER SUPPLY IS BLOWN. 1-8

FUSE F3 PCB A1 POWER SUPPLY IS BLOWN 1-8

FUSE F4 PCB A1 POWER SUPPLY IS BLOWN 1-9

1. INTRODUCTION

The KODAK MULTILOADER 700 SIDE-BY-SIDE KIT (hereafter called SBS) is equipped with a simple to use build-in SERVICE MODE. The SBS has 3 RESET BUTTONS. Two of them are on the PCB's. This are the so-called HARDWARE RESET BUTTONS. The 3rd one is external to the PCB's and is called the SERVICE MODE BUTTON. If a HARDWARE RESET BUTTON is pressed, the MICRO-PROCESSOR halts as long as the BUTTON is pressed. After the BUTTON is released the PROGRAM COUNTER is set to the START ADDRESS and the SBS is started as after a power up. If the SERVICE MODE BUTTON is pressed, the MICRO PROCESSOR is not halted and therefore the time the BUTTON is pressed can be measured. This time is used to decide between the start of the normal or of the extended SERVICE MODE.



NOTE

The SERVICE MODE BUTTON could be on either side of the SBS. This is set up during installation.

figure 1-1

2. HARDWARE RESET

The HARDWARE RESET can be initiated by pressing the HARDWARE RESET BUTTON on the SLAVE PROCESSOR PCB A3 or by power off/on. The following action will happen:

1. The SBS CARRIAGE is on the PROCESSOR side

- If a FILM is in the PROCESSOR INTERFACE, the film is transported with the PROCESSOR SPEED into the PROCESSOR.

- If there is no film detected in the PROCESSOR INTERFACE and if the CARRIAGE is on the PROCESSOR SIDE, the CARRIAGE ROLLERS and the INTERFACE ROLLERS are driven with a higher speed for several seconds in direction to the PROCESSOR. If there was a film on the CARRIAGE, it is transported into the PROCESSOR. After a few seconds the SBS CARRIAGE is moved to the ML700 side and then back to the PROCESSOR (HOME POSITION). This action ensures that the carriage is positioned correctly.

2. The SBS CARRIAGE is on the ML700 side

- If SENSOR B1/MFI detects a film, the film is transported into the CARRIAGE and then into the PROCESSOR.

- If no FILM is detected, it is still possible that there is one in the CARRIAGE. For this reason the CARRIAGE goes to the PROCESSOR side and tries to transport the FILM into the PROCESSOR.

- If the CARRIAGE is in an undefined position, it first goes to the ML700 side and then to the PROCESSOR side. In case that there might be a FILM in the CARRIAGE, the INTERFACE ROLLER MOTOR is turned on, to transport the FILM into the PROCESSOR.

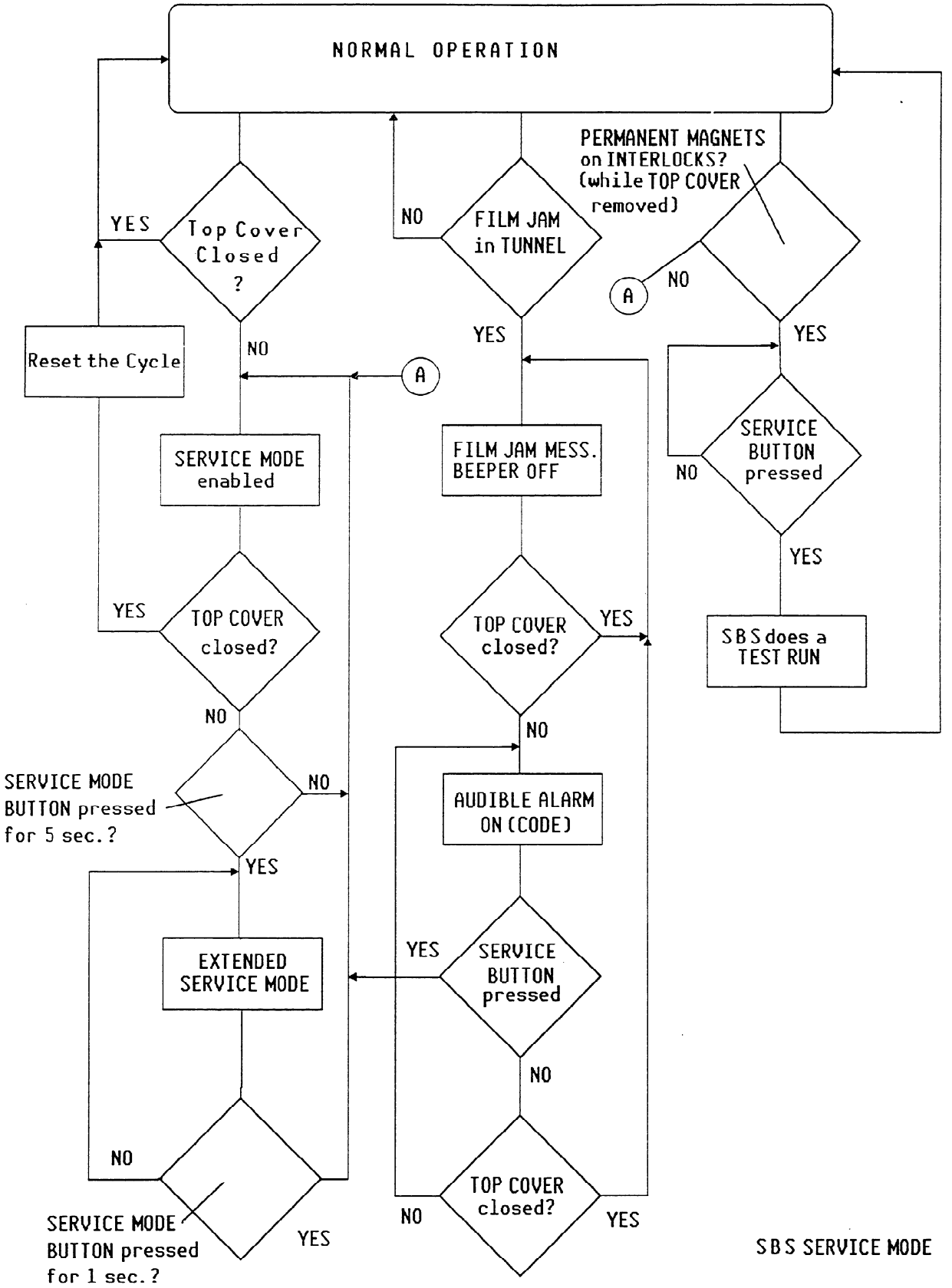

NORMAL OPERATION
PERMANENT MAGNETS on INTERLOCKS? (while TOP COVER removed)
YES
Top Cover Closed ?
NO
FILM JAM in TUNNEL
NO
A
YES
YES
Reset the Cycle
NO
A
SERVICE MODE enabled
FILM JAM MESS. BEEPER OFF
SERVICE BUTTON pressed
NO
YES
YES
TOP COVER closed?
TOP COVER closed?
YES
SBS does a TEST RUN
NO
NO
SERVICE MODE BUTTON pressed for 5 sec.?
NO
AUDIBLE ALARM ON (CODE)
YES
YES
EXTENDED SERVICE MODE
SERVICE BUTTON pressed
YES
NO
NO
TOP COVER closed?
SERVICE MODE BUTTON pressed for 1 sec.?
NO
YES
YES
SBS SERVICE MODE

figure 1-2

NOTE

If a HARDWARE RESET is initiated with the upper part of the CARRIAGE not properly engaged, the DRIVE MOTOR M1/CA is not switched off via the CARRIAGE END SWITCHES (B3/CRP or B4/CLP). In this case the CARRIAGE is driven against the SBS wall and stopped with a time out. However the motor current is electronically limited to avoid any damage.

3. SERVICE MODE

NOTE

See the FLOW CHART ON THE NEXT PAGE

NORMAL SERVICE MODE

NOTE

In the NORMAL SERVICE MODE only the SENSORS can be checked. The RED / YELLOW / GREEN LED at the rear of the SBS is blinking alternatingly with the following sequence:
1 second red 1 second yellow 1 second green 1 second pause and so on.

There are two ways to enter the NORMAL SERVICE MODE.

1. There is no SBS ERROR

Just lift the SBS TOP COVER and the SERVICE MODE is automatically entered. In the left-hand and right-hand SBS FRAME are 2 REED CONTACTS. The PERMANENT MAGNET ACTUATORS are built into the SBS TOP COVER. As soon as the SBS TOP COVER is lifted, the INTERLOCK SYSTEM is interrupted via the REED CONTACTS. This condition is used to enter the SERVICE MODE.

2. There is a SBS ERROR

Just lift the SBS TOP COVER. As soon as the INTERLOCK SYSTEM is interrupted, the audible ERROR CODE is switched on. This audible ERROR CODE is terminated by a short press of the SERVICE MODE BUTTON. The SERVICE MODE is now started.

A SENSOR OUTPUT change is indicated by a BEEP (like with the audible part of the ML700 SENSOR TEST). The DFT LED's are blinking

EXTENDED SERVICE MODE

There is just one way to enter the EXTENDED SERVICE MODE. After the SERVICE MODE is started, press the SERVICE MODE BUTTON for more than 5 seconds. The start of the EXTENDED SERVICE MODE is indicated by a BEEP.

In addition to the SENSORS input and output signals from and to the SBS can be monitored. If an input signal is connected to ground, the BEEPER is switch on. The output signals are 1

second HIGH and then 1 second LOW and so on. This can be measured with a DVM. If the INTERFACE SIGNALS have to be tested, all INTERFACE CABLES have to be disconnected prior to the start of the EXTENDED SERVICE MODE.

4. ERROR HANDLING

In case of a SBS ERROR, the signal TSR (TUNNEL SENSOR REAR) stays high. This causes the message FILM JAM IN TUNNEL on the ML700 DISPLAY. The message shows up after 40 seconds. This time depends on the ML700 PARAMETER PROCESSOR TIME. Its normal setting is 28h(=40 decimal). If the SBS problem is solved and the SBS started again, the signal TSR goes LOW and the ERROR MESSAGE on the ML700 DISPLAY is cleared.

ERROR CODES

NOTE

The SBS ERROR CODES are not displayed with LED's. You have to listen to the BEEPER as soon as the SBS TOP COVER is lifted. There are short beeps(0.25 seconds) and long beeps (1 second). The CODES are given in HEX (00 - ff).

ERROR CODE 14

long beep pause 500 msec short beep short beep short beep short beep pause 2 second and so on.

IMPORTANT NOTE

The TUNNEL FLAG in the ML700 must be set to 2. In this case the PROCESSOR START SIGNAL is send to the SBS as soon as a CASSETTE is fed into the ML700 and the SBS CARRIAGE moves from the PROCESSOR to the ML700. If however the TUNNEL FLAG is not set to 2, the PROCESSOR START SIGNAL is send to the SBS after the FILM is picked up from the CASSETTE. In this case the SBS-CARRIAGE starts to late and the FILM from the ML700 drops into the SBS-CABINET. The SBS cannot detect if the ML700 TUNNEL FLAG is set to the correct value.

ERROR	DESCRIPTION	CAUSE	REMEDY
11	Processor position not reached.	TIMING BELT broken	Replace the TIMING BELT
		SENSOR B3 or B4 misadjusted or defective	adjust or replace the SENSOR
		MOTOR M1/CA defective	replace MOTOR M1
		PCB A4 defective.	replace PCB A4
12	ML700 position not reached.	TTIMING BELT broken	Replace the TIMING BELT
		SENSOR B3 or B4 misadjusted or defective	adjust or replace the SENSOR
		MOTOR M1/CA defective	replace MOTOR M1
		PCB A4 defective.	replace PCB A4
13	Film from the ML700 is too long. SENSOR B1 is covered for more than 4 seconds.	SENSOR B1 defective	Check SENSOR B1
		ML700 CONVEYER does not transport the FILM correctly.	Check if the CONVEYER holds back the film.
14	Film from the ML700 is too short. SENSOR B1 is covered for less than 0.3 seconds.		Check SENSOR B1.
15	TIME-OUT when transporting the FILM from the CARRIAGE into the PROCESSOR ADAPTER	SENSOR B2-1/B2-2 (ADAPTER INPUT) defective	Replace SENSOR B2-1/B2-2
		CARRIAGE CLUTCH not engaged	Check the CLUTCH SPRING, replace it if necessary. Check the PINS of the CLUTCH DISK. Replace the CLUTCH DISK if necessary.
		CLUTCH TOOTHED BELT BROKEN	REPLACE the BELT
		FILM TRANSPORT MOTOR M2 is not running	replace MOTOR M2
		PCB A4 defective	replace PCB A4
		SENSOR B3/B4 defective	replace SENSOR B3/B4

16	FILM TRAILING EDGE not detected in the Processor Adapter	Motor M3 does not run	Replace MOTOR M3
		PCB A4 defective	replace PCB A4
		PROCESSOR is not running	check the PROCESSOR
		SENSOR B2 defective	replace SENSOR B2
FF	SYSTEM FAILURE		Replace the SOFTWARE replace PCB A3
PERMANENT BEEP			A DFT is not installed and the DFT JUMPER is missing.

5. FUSE PROBLEMS

The problem created by a blown FUSE depends when in a cycle the FUSE is blowing. The symptoms described below occur after POWER UP of the ML700. This means if you are in doubt of a FUSE switch off the ML700, wait a few seconds and switch on the ML700. Then watch the display of the ML700. Another method is of course to check the FUSES with a MULTIMETER.

NOTE

A blown fuse is not necessarily interrupted completely. There are occasions where such a FUSE opens intermittently.

MAIN FUSE IN THE IEC CONNECTOR IS BLOWN.

After POWER UP of the ML700 the following message is displayed:
PROCESSOR NOT READY
DARKROOM FILM FEEDER IN USE
After approximately 40 seconds the DISPLAY changes to:
CAUTION
FILM JAMMED IN TUNNEL

NOTE

If the MAIN FUSE in the IEC CONNECTOR is blown, the SBS FAN does not run.

FUSE F1 PCB A1 POWER SUPPLY IS BLOWN.

This is the FUSE for the UNREGULATED MICROPROCESSOR VOLTAGE +10 V (VμP). After POWER UP of the ML700 the following message is displayed:

PROCESSOR NOT READY

DARKROOM FILM FEEDER IN USE

Approximately 40 seconds later the DISPLAY will change to:

CAUTION

FILM JAMMED IN TUNNEL

If the ML700 is powered off during the first message is displayed and then switched on again, the first message is displayed and then the second.

If the ML700 is powered off after the second message is displayed and then switched on again, only the second message is displayed.

If the SBS COVER is lifted, no audible alarm sounds and there is no reaction if the SERVICE BUTTON is pressed.

FUSE F2 PCB A1 POWER SUPPLY IS BLOWN.

This is the FUSE for the UNREGULATED PERIPHERAL VOLTAGE +30V (VPE40). After the ML700 is powered up, no error message is displayed and the GREEN LIGHT is on. Approximately 60 seconds later the following message is displayed:

FILM JAMMED IN TUNNEL

If a CASSETTE is fed in during the GREEN LIGHT is on, the CASSETTE is unloaded and loaded. However the MOTOR for the SBS CARRIAGE BELTS does not start and the FILM waits at the CARRIAGE ENTRY. It looks as if SENSOR B1 has not seen the FILM. If during the next 60 seconds another CASSETTE is fed in, the CASSETTE is opened but not unloaded. Approximately 40 seconds later the following message is displayed:

CAUTION

FILM JAMMED IN TUNNEL

EXPOSED FILM NOT UNLOADED

FILM JAMMED IN TUNNEL

FUSE F3 PCB A1 POWER SUPPLY IS BLOWN

This is the FUSE for the UNREGULATED PERIPHERAL VOLTAGE +30V (VPE50). Approximately 50 seconds after the ML700 is powered up the following message is displayed:

CAUTION

FILM JAMMED IN TUNNEL

If the SBS COVER is lifted, no audible alarm sounds. If a CASSETTE is fed in before the above mentioned error message is displayed it takes approximately 40 seconds and the following error message is displayed:

CAUTION

EXPOSED FILM NOT UNLOADED

FILM JAMMED IN TUNNEL

FUSE F4 PCB A1 POWER SUPPLY IS BLOWN

This is the FUSE for the UNREGULATED PERIPHERAL VOLTAGE +10V (VPE10).
Approximately 40 seconds after the ML700 is powered up the following message is displayed:

CAUTION

FILM JAMMED IN TUNNEL

If the SBS COVER is lifted, no audible alarm sounds and there is no reaction to the SERVICE BUTTON.

CUSTOMER EQUIPMENT SERVICES KODAK AG STUTTGART GERMANY